

03040205-090
(Pocotaligo River)

General Description

Watershed 03040205-090 is located in Clarendon and Sumter Counties and consists primarily of the **Pocotaligo River** and its tributaries from Turkey Creek to its confluence with the Black River. The watershed occupies 160,578 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Noboco-Bonneau-Lynchburg-Paxville-Rains series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-10%. Land use/land cover in the watershed includes: 33.9% agricultural land, 27.7% scrub/shrub land, 24.7% forested land, 11.2% forested wetland (swamp), 1.4% urban land, 0.7% nonforested wetland (marsh), and 0.4% water.

This section of the Pocotaligo River accepts drainage from its upper reach together with Briar Branch, Boots Branch, Sammy Swamp (Boggy Swamp, Broadway Branch, Hungary Hall Branch, DesChamps Branch, Home Branch, Guckolds Branch), and Big Branch. Further downstream, another Big Branch enters the river followed by Bell Branch and Ox Swamp (Hog Branch, Lemon Branch, Fellowship Branch, Davis Branch, Loss Branch) near the City of Manning. Bear Creek enters the river next, followed by Deep Creek (Elwood Bay, Hog Bay, White Pond, Joes Branch), Juneburn Branch (Lightwood Knot Branch), Peddlers Branch, and Lakewood Creek (Lakewood Pond). The Pocotaligo River Watershed drains into the Black River. The western portion of the watershed is within the Manchester State Forest. There are several recreational ponds (totaling 206.2 acres) and 361.0 stream miles in this watershed. The Pocotaligo River is classified FW* (Dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.0) and the remaining streams in the watershed are classified FW.

Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
PD-202	P	FW*	POCOTALIGO RIVER AT S-43-32 9 MILES SSE OF SUMTER
PD-115	S	FW*	POCOTALIGO RIVER AT THIRD BRIDGE N OF MANNING ON US 301
PD-043	P	FW*	POCOTALIGO RIVER AT S-14-50 9.5 MILES NE MANNING

Pocotaligo River - There are three monitoring sites along this section of the Pocotaligo River. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Past logging practices in the reach between PD-202 and PD-115 have exacerbated this condition by restricting flushing and removing the arboreal canopy that provided shading to the system. Beginning in 1994, the Pocotaligo Swamp Reclamation Project began restoring flow through the swamp and replanting of trees, which should result in improved water quality as the canopy is reestablished (See Pocotaligo Swamp Restoration Project, p.93).

Aquatic life uses are not supported at the furthest upstream site (**PD-202**) due to dissolved oxygen excursions, compounded by a significant increasing trend in total phosphorus concentration. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a

significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene, and benzo(a)anthracene were detected in the 1995 sediment sample, and P,P'DDT and P,P'DDE (metabolites of DDT) were detected in the 1996 sample. P,P'DDT, P,P'DDD, and P,P'DDE were detected in the 1997 sediment sample, and phenol and P,P'DDE were detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the next site downstream (**PD-115**), aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Aquatic life uses are fully supported at the downstream site (**PD-043**); however, there is a significant increasing trend in turbidity. There was also a high concentration of zinc measured in 1994. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. P,P'DDD, O,P'DDD, and P,P'DDE (metabolites of DDT) were detected in the 1994 sediment sample, P,P'DDT (another metabolite of DDT) was detected in the 1996 sample, P,P'DDT and P,P'DDE were detected in the 1997 sample, and P,P'DDD and P,P'DDE were detected in the 1998 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Pocotaligo River within this watershed (see advisory p. 73).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	NPDES# TYPE LIMITATION
POCOTALIGO RIVER GA PACIFIC CORP./ALCOLU PLT PIPE #: 001 FLOW: M/R	SCG250120 MINOR INDUSTRIAL EFFLUENT
POCOTALIGO RIVER CITY OF SUMTER/POCOTALIGO RIVER PLANT PIPE #: 001 FLOW: 15.0 WQL FOR DO,TRC,NH3N,BOD5	SC0027707 MAJOR DOMESTIC WATER QUALITY
POCOTALIGO RIVER	SC0020419

CITY OF MANNING WWTP
 PIPE #: 001 FLOW: 2.50
 WQL FOR DO,TRC,NH3N,BOD5

MAJOR DOMESTIC
 WATER QUALITY

Nonpoint Source Management Program

Camping Facilities

***FACILITY NAME/TYPE
 RECEIVING STREAM***

***PERMIT #
 STATUS***

CAMPERS PARADISE/FAMILY
 BELL BRANCH

14-0003
 ACTIVE

Land Disposal Activities

Landfill Facilities

***LANDFILL NAME
 FACILITY TYPE***

***PERMIT #
 STATUS***

GA PACIFIC CORP.
 INDUSTRIAL

IWP-148

GA PACIFIC CORP. C/C LANDFILL
 CONSTRUCTION

143304-1201 (CWP-032)

BOB SPRINGERS LANDFILL
 INDUSTRIAL

IWP-183

MANNING DUMP

 CLOSED

PINEWOOD DUMP

 CLOSED

CLARENDON COUNTY LANDFILL
 MUNICIPAL

141001-1103 (DWP-058)
 CLOSED (ACTIVE)

CLARENDON COUNTY C&D LANDFILL
 CONSTRUCTION

141001-1203

CLARENDON HUGO LANDFILL
 CONSTRUCTION

141001-1202 (CWP-016)

Mining Activities

***MINING COMPANY
 MINE NAME***

***PERMIT #
 MINERAL***

J.F. CLECKLEY & CO.
 CALLOWAY PIT, MINE #2

0831-27
 SAND

Growth Potential

There is a moderate to high potential for growth in this watershed, which includes the City of Manning and the Towns of Paxville and Pinewood. I-95 crosses the watershed near Manning, and other major roads running through Manning include U.S. Hwys. 15, 521, 301, and S.C. Hwys. 261 and 260.

Besides the rail line connecting the Cities of Manning and Sumter, the Clarendon County Industrial Park should encourage future industrial growth. The remainder of the watershed is rural with agricultural and timberland uses. There are plans for water to service the Towns of Pinewood and Paxville and the S.C. Hwy. 261 and U.S. Hwy. 15 corridors, which should encourage all forms of growth.

Watershed Protection and Restoration

Special Projects

Impact of Hog Lagoon Effluent and Turkey Litter on Loblolly Pine Stands in the Coastal Plain

Increased demand for forest products coincides with the increasing need to find alternative disposal/recycle/utilization options for various forms of animal waste including swine lagoon liquids and turkey litter. Currently, almost all of this animal waste is applied to agricultural land. Available land is becoming scarce in some localities of South Carolina, and forested land represents an additional source on which to dispose of the waste. When the waste is applied at an agronomic rate, a BMP for nonpoint source control is being utilized.

A loblolly pine plantation in Clarendon County is the project site for the application of liquid swine manure. The results of the first two applications of 120 lbs PAN/acre and 60 lbs PAN/acre are promising for the application of livestock waste to crops other than conventional agricultural row crops. Groundwater and soil are being monitored for major plant nutrients, copper, zinc, and arsenic. Sample results indicate concentrations well below permissible levels. The majority of the applied nutrients from the manure are accumulating in the top six inches of the soil profile. Implications of the project show a promising future for the establishment of an annual application rate that is environmentally safe, as shown by water and soil parameters.

Pocotaligo Swamp Restoration Project

Prior to 1950, the Pocotaligo Swamp was noted as a river-swamp system with many well-defined flowing streams, and dominated by a dense community of water tupelo and bald cypress trees. In the 1950's and early 1960's, most of the trees were harvested from the swamp north of U.S. Hwy. 301. Clear-cut logging operations left access roads across the swamp which blocked stream channels and water flow within the swamp. Water levels in the swamp increased, which suppressed and prevented natural tree regeneration. This shallow, permanent flooding provided ideal conditions for aquatic weeds to grow. These aquatic weeds further reduced water flow and increased flood levels. Most of the weeds die back in the winter, and the onset of decay begins during the following summer. This decay process causes a significant increase in the biochemical oxygen demand and results in oxygen deficits that are lethal to many species of fish and aquatic life.

The objective of this project was to restore, on an experimental basis, the natural wetland environment in parts of the Pocotaligo Swamp. The initial goal of the project was to reestablish the natural water flow patterns within the swamp. This was accomplished by identifying, locating, and inventorying old stream channels and removing blockages.

In June 1995, a reconnaissance study was completed by the U.S. Army Corps of Engineers to determine the extent and range of degradation that has occurred within the Pocotaligo Swamp. In addition,

a study was completed by the University of South Carolina, that focused on the impacts of the logging roads and nutrient loading within the swamp. According to these studies, the construction of over 35 logging roads in the 1950's obstructed the natural water flow of the swamp. Both reports emphasized the importance of removing these flow restrictions within the swamp.

In May of 1996, the present water flow channels in Pocotaligo Swamp were identified using aerial reconnaissance. With the assistance of SCDNR and the USDA Natural Resources Conservation Service, major stream channels were located and permanently marked with the global positioning system. The aerial study provided very useful information in assisting the ground teams in locating stream channels. The stream channel study revealed that excessive aquatic vegetation was obstructing water flow in many areas of the swamp. As stream channels are cleared of obstructions it is projected that the water velocity will increase and streams will become more defined as they erode to accommodate the increased flow.

In an effort to restore the natural tree canopy within the swamp, ten sites were selected for demonstration tree plantings. In 1995, 350 bare rooted, bald cypress trees were planted in 1-3 feet of water and through thick aquatic vegetation. In January of 1996, an additional 238 root pruned bald cypress and 71 containerized water tupelo were planted in additional areas. Long term monitoring of these test plots, along with additional planting, will provide valuable information on restoration of other flooded freshwater wetland sites. Technical guidance and field assistance for these tree test plots was provided by Clemson University, which plans to monitor tree growth and survival after the project is complete.

The South Carolina Department of Health and Environmental Control developed a water quality monitoring plan to determine the impact of blockage removal on water quality. In March of 1995, SCDHEC began monthly monitoring for dissolved oxygen and stream flow within Pocotaligo Swamp. The second year of sampling ended in February 1997. Preliminary review of the data indicates that due to the breaching of the tram roads and the spraying of the aquatic vegetation, flushing of the swamp has increased. With the increased flushing, dissolved oxygen levels on the average have increased throughout the swamp, along with decreased water levels. These factors should make conditions much more conducive for the replanting effort that is underway in selected areas of the swamp.